
Endogenous proliferation after spinal cord injury in animal models.

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Public Summary:

Spinal cord injury (SCI) results in motor and sensory deficits, the severity of which depends on the level and extent of the injury. Animal models for SCI research include transection, contusion, and compression mouse models. In this paper we will discuss the endogenous stem cell response to SCI in animal models. All SCI animal models experience a similar peak of cell proliferation three days after injury; however, each specific type of injury promotes a specific and distinct stem cell response. For example, the transection model results in a strong and localized initial increase of proliferation, while in contusion and compression models, the initial level of proliferation is lower but encompasses the entire rostrocaudal extent of the spinal cord. All injury types result in an increased ependymal proliferation, but only in contusion and compression models is there a significant level of proliferation in the lateral regions of the spinal cord. Finally, the fate of newly generated cells varies from a mainly oligodendrocyte fate in contusion and compression to a mostly astrocyte fate in the transection model. Here we will discuss the potential of endogenous stem/progenitor cell manipulation as a therapeutic tool to treat SCI.

Scientific Abstract:

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